Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
The Proposed Extension of Part 4 of the Commission's Rules Regarding Outage Reporting to Interconnected Voice Over Internet Protocol Service Providers and Broadband Internet Service Providers	)	PS Docket No. 11-82

REPLY COMMENTS

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The Wireless Communications Association International, Inc. ("WCAI"), the trade association of the wireless broadband industry, submits these reply comments in this proceeding.

II. DISCUSSION

A. There is no justification for mandatory reporting of broadband quality of service metrics

The Commission's proposed outage reporting requirements reflect the inherent tension between the Commission's desire for an "open" Internet with network intelligence concentrated at the "edge" and the Commission's desire for particular levels of Internet service quality. The Commission adopted open Internet rules to preserve an "end-to-end" network architecture in which "devices in the middle of the network are *not* optimized for the handling of any particular application, while devices at network endpoints perform the functions necessary to support networked applications and services."[1] This end-to-end network architecture is intended to support applications on a "best efforts" basis that emphasizes service resiliency and "edge" innovation over quality of service (QoS) and innovation in the "middle".

Resiliency is provided by the "connection-less" Internet protocol. It does not attempt to guarantee the arrival of a particular packet (let alone in a particular timeframe). Internet protocol assumes that the network is inherently unreliable at any single network element but is dynamic in terms of availability of links and nodes. Rather than rely on central monitoring or performance measurement to track or maintain the state of the network, the Internet guards against link failures by routing packets through

[1] *See* Open Internet Order, FCC 10-201 at ¶ 13, n. 13 (2010) (emphasis added).

any available path. If a link fails, the network attempts to route around the failure. This reduces the Internet's susceptibility to the types of "outages" experienced by plain old telephone services, which rely on dedicated transmission paths that often have a single point of failure. At the same time, the lack of a dedicated transmission path or centralized network control in the Internet protocol inherently permits various error conditions, such as data corruption, packet loss and duplication, and out-of-order packet delivery.

The Internet architecture "preserved" by the Commission also emphasizes "edge" innovation by limiting service optimization within the network. In the Open Internet Order, the Commission recognized that this approach "allows all end users and edge providers (rather than just the significantly smaller number of broadband providers) to create and determine the success or failure of content, applications, services, and devices."[2] Placing the risk of success or failure at the "edge" of the network also means that the Internet has no built-in mechanism to provide specific QoS levels and no interface for applications to request it.

These characteristics of the Internet – resiliency and edge innovation – have played an integral role in the Internet's success. They also play an integral role in the Internet's primary challenge: handling diverse applications while delivering high QoS and adequate security. Within the limits inherent in the Internet's current architecture, service providers offer highly secure, reliable, and resilient Internet access. However, as a natural consequence of the Internet's end-to-end design, networks occasionally

[2] Open Internet Order at ¶ 13.

experience packet loss, latency, jitter, and other QoS issues despite the best efforts of service providers.

These QoS issues aren't "outages," they are "design features" of the TCP/IP protocol suite that derive from architectural decisions made in the 1970's and that have since been cemented into law by the Commission. Defining QoS issues inherent in the Internet's end-to-end architecture as "outages" subject to onerous reporting requirements won't help the Commission in its "efforts to improve [the] security, reliability, and resiliency" of the Internet.[3] If the Commission wants to address Internet QoS issues, it should reconsider its decision to "preserve" the "unfinished demo"[4] of the current Internet through regulations mandating a single level of "best efforts" Internet service rather than require burdensome reporting to monitor the potential consequences of that decision.

Even if they could be considered "outages," the existence of occasional QoS issues "does not translate into the need to fashion an elaborate reporting scheme to monitor them."[5] There is no evidence that providers have not or would not address Internet QoS issues absent Commission intervention.[6] The Commission's assertion in the NPRM that broadband providers are "not incentivized"[7] to maintain the "security, reliability, and

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[3] Outage Reporting NPRM, FCC 11-74 at ¶ 15 (2011).

[4] Eleni Trouva, Eduard Grasa, John Day, Ibrahim Matta, Lubomir T. Chitkushev, Patrick Phelan, Miguel Ponce de Leon, and Steve Bunch, *Is the Internet an Unfinished Demo? Meet RINA!* (Oct. 6, 2010) (http://pouzin.pnanetworks.com/images/Is_the_Internet_an_unfinished_demo_-_Meet_RINA.pdf).

[5] Comments of AT&T Inc., PS Docket No. 11-82 at p. 14 (filed Aug. 8, 2011) (AT&T Comments).

[6] *Id*.

[7] Outage Reporting NPRM at ¶ 21.

resiliency of their respective services"[8] directly contradicts its own finding only six months earlier that its open Internet rules "will increase incentives to invest in broadband infrastructure."[9] In the NPRM, the Commission implies that *negative* network externalities limit the economic justification for ensuring the security, reliability, and resiliency of the network.[10] But, in the Open Internet Order, the Commission expressly relied on *positive* network externalities to find the exact opposite: that the creation of "new content, applications, services, and devices" by "edge" providers (an externality) "enables a virtuous circle of innovation in which new uses of the network . . . lead to increased end-user demand for broadband, which drives network improvements, which in turn lead to further innovative network uses."[11] In the absence of some explanation for its change of heart, it would be arbitrary and capricious for the Commission to find there is a virtuous cycle driving network improvements (to justify open Internet obligations) while (almost simultaneously) finding that broadband service providers have no incentive to improve their networks (to justify outage reporting obligations).

Finally, even if the Commission could demonstrate a market failure justifying the imposition of QoS reporting for mobile broadband networks, the Commission would have no legal authority to impose such requirements. WCAI agrees with commenters who believe the Commission lacks ancillary authority to impose broadband outage

[8] *Id*. at ¶ 20.

[9] Open Internet Order at ¶ 40.

[10] *Id*. at ¶ 20.

[11] *Id*. at ¶ 14.

reporting at all.[12] But, even if the Commission could justify ancillary authority over broadband outage reporting generally, it would still be unable to justify ancillary authority over broadband QoS reporting for mobile broadband service providers. Mobile broadband is a "private mobile service."[13] Section 332(c)(1)(A) prohibits the Commission from treating any mobile service as a common-carrier service *unless* that mobile service qualifies as a "commercial mobile radio service."[14] Section 332(c)(2) prohibits the Commission from treating a person engaged in the provision of a "private mobile service" as a "common carrier for *any* purpose."[15] Private radio services are thus exempt from the exercise of ancillary jurisdiction based on common carriage. Because QoS requirements are premised on common carrier obligations, the Commission lacks jurisdiction to impose QoS reporting on mobile broadband service providers.

B. It would be premature to impose mandatory reporting of quality of service metrics on mobile broadband providers

The QoS metrics proposed by the Commission are impractical in the mobile context. Mobile networks are subject to variable levels of radiofrequency interference, congestion, and coverage. A single mobile broadband service provider typically operates multiple technologies simultaneously with variable capabilities. Attempting to develop performance metrics for mobile broadband networks is also complicated by the ongoing transition to all-IP 4G architectures. These dynamics would likely render the Commission's proposed QoS metrics meaningless for mobile broadband service

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[12] See, e.g., Comments of CTIA, PS Docket No. 11-82 at pp. 12-16 (filed Aug. 8, 2011) (CTIA Comments).

[13] See Wireless Broadband Classification Order, FCC 07-30 at ¶ 2 (2007).

[14] 47 U.S.C. § 332(c)(1)(A).

[15] 47 U.S.C. § 332(c)(2) (emphasis added).

providers. As Sprint Nextel noted in its comments, it is "fairly common" to experience round trip delays of 100 ms or more – especially in the wireless context.[16] And as AT&T noted in its comments, the current rules applicable to mobile carriers already require reporting of events that "are not really outages at all." The Commission's proposed QoS metrics would makes matters worse by subjecting service providers to "nearly constant reporting"[17] and overwhelming Commission staff with reams of useless data. In the absence of any data regarding the value of the Commission's proposed QoS metrics in the mobile context, it would be premature to mandate reporting of QoS metrics by mobile broadband service providers.[18]

C. If the Commission mandates broadband "outage" reporting, it should limit reporting to actual loss of service only with realistic reporting deadlines

WCAI agrees with other commenters who believe mandatory outage reporting is unnecessary and urge the Commission to instead consider voluntary reporting.[19] If the Commission nevertheless mandates broadband "outage" reporting, it should limit reporting to actual loss of service only with reporting deadlines that are rationally related to the Commission's goals in this proceeding. WCAI generally supports the criteria recommended by AT&T in its initial comments in this proceeding (subject to an exclusion for small wireless broadband service providers discussed below).[20] These

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[16] *See* Comments of Sprint Nextel Corporation, PS Docket No. 11-82 at p. 10 (filed Aug. 8, 2011) (Sprint Comments).

[17] CTIA Comments at p. 10.

[18] See *id*. at p. 7.

[19] *See, e.g.*, AT&T Comments at pp. 9-19.

[20] See *id*. at pp. 23-29.

criteria are relatively clear, consistent with POTS reporting requirements, limited to actual outages, and attempt to minimize reporting burdens.

D. There is no justification for imposing any outage reporting requirements on small wireless broadband service providers

The Commission assumes that "the types of information that would be needed in such outage reporting are already readily available to reporting entities via the normal network management processes."[21] Even if this were true for large broadband service providers, WCAI shares WISPA's understanding that many small wireless broadband service providers do not routinely deploy network management processes capable of reporting the QoS metrics proposed in the NPRM.[22] Small wireless broadband service providers often lack the economies of scale and density necessary to justify extensive monitoring and reporting capabilities and often have less need for such capabilities because their networks are typically in low-density areas that are often subject to less congestion than that experienced by larger broadband services providers who operate in the urban core. For these small wireless broadband service providers, the burden of compliance with the Commission's proposed outage reporting requirements would be high.

At the same time, the benefit of requiring such compliance would be particularly low. Outage reporting by small service providers is unlikely to contribute significantly to the Commission's efforts to develop and refine industry best practices or play a significant role in responding to a regional emergency. Because their networks serve

[21] Outage Reporting NPRM at para. 21.

[22] Comments of the Wireless Internet Service Providers Association, PS Docket No. 11-82 at p. 2 (filed Aug. 8, 2011).

relatively few customers and are often subject to less congestion, the data obtained from these networks would likely be limited in quantity and of limited usefulness. And, because small wireless broadband service providers are often competitors to one or more wired alternatives, small wireless broadband services providers are not likely to be the only source of Internet connectivity in times of emergency.

In short, the burden of outage reporting on small service providers would be high, yet would be of minimal benefit in achieving the Commission's goals in this proceeding.

The Commission should define a small broadband service provider as any broadband service provider that serves 20,000 or fewer customers. This definition would mitigate the impact of outage reporting requirements on the most vulnerable wireless broadband service providers without excluding a significant portion of Internet subscribers from such requirements. WCAI believes WISPA's proposal to limited the exclusion to broadband service providers with 500 or fewer subscribers is too narrow.[23] To the extent there is uncertainty regarding the appropriate number of subscribers for such exclusion, the Commission should err on the side of caution rather than risk being underinclusive and causing unnecessary harm to the very entrepreneurial competitors who have accepted the Commission's invitation to enter the market.

[23] *See id*. at p. 6.

IV. CONCLUSION

WCAI respectfully requests that the Commission consider these reply comments in its deliberations in this proceeding.

Respectfully submitted,

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